THE INVENTION CLAIMED IS

1. A modular propeller, comprising:

a center hub with an integrated front cap and a solid aluminum core encapsulated with fiber-reinforced composite polymer resin in a single piece;

a set of replaceable blades with bases that slip into and interlock with corresponding slots in the center hub; and

a rear cap for retaining the set of blades in the center hub.

2. The propeller of claim 1, further comprising:

a coaxial bore front-to-rear through the center hub for mounting the propeller to a shaft; and

a set of splines disposed in the coaxial bore and having a foreshortened axial length that provides for mounting on a larger number of motor types.

3. The propeller of claim 1, further comprising:

chambered passages axially disposed in each one of the set of blades for conducting exhaust gases; and

at least one vane between plural chambered passages in each one of the set of blades.

4. The propeller of claim 1, further comprising:

an axially tapered section disposed in each one of the set of blades; and

a matching and corresponding tapered section disposed in the center hub to receive and interlock with each one of the set of blades;

wherein, such tapered sections have an axial taper in the range of 0.01 to 3.0 degrees that opens wider toward the aft of the propeller.

5. The propeller of claim 1, further comprising:

a nozzle section disposed in the rear cap and for expelling exhaust gasses that pass through the center hub and blades.

6. A modular counter rotating propeller system, comprising:

a front center hub with a first set of propeller-blade receptacles and for mounting on a rotating engine driveshaft;

a rear center hub with a second set of propeller-blade receptacles and for mounting on a counter-rotating engine driveshaft coaxial to said rotating engine driveshaft and aft of the front center hub;

a first set of replaceable propeller blades with plug-in bases that slip into and interlock with corresponding slots in the front center hub;

a second set of replaceable propeller blades with plug-in bases that slip into and interlock with corresponding slots in the rear center hub;

a first set of chambers disposed in said bases of the first set of replaceable propeller blades for receiving exhaust gases from an engine associated with said rotating and counter-rotating engine driveshafts, and for conducting such exhaust gases aft; and

a second set of chambers disposed in said bases of the second set of replaceable propeller blades for receiving

exhaust gases from the first set of chambers, and for conducting such exhaust gases out aft;

wherein, during use said exhaust gases do not mix with any water contacting and being driven by the first or second set of replaceable propeller blades.